

NON-PUBLIC?: N
ACCESSION #: 9512070135
LICENSEE EVENT REPORT (LER)

FACILITY NAME: North Anna Power Station Unit 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000339

TITLE: AUTOMATIC REACTOR TRIP DUE TO LOSS OF "B" CONTROL ROD
DRIVE SYSTEM MOTOR GENERATOR SET
EVENT DATE: 11/11/95 LER #: 95-004-00 REPORT DATE: 12/04/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Mr. J. A. Stall TELEPHONE: (540) 894-2101

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: AA COMPONENT: MG MANUFACTURER: W120
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On November 11, 1995, at 1215 hours, with Unit 2 in Mode 1, 100 percent power, an automatic reactor trip occurred. The reactor trip initiating signal was "Hi Flux Rate - Reactor Trip." At 0220 hours on November 11, 1995, the "A" Control Rod Drive System Motor Generator (MG) set tripped. The "A" MG set was tagged out to support troubleshooting activities when the output breaker of the "B" Motor Generator set tripped open causing the control rods to drop into the core. This resulted in the High Flux Rate Reactor Trip.

Loose fuses in the control power to the voltage regulators of each of the MG sets were determined to be the cause for the loss of the MG sets.

A four (4) hour report was made to the NRC Operations Center at 1445 hours on November 11, 1995 in accordance with 10 CFR 50.72 (b)(2)(ii). This event is reportable pursuant to 10 CFR 50.73 (a)(2)(iv) for a

condition that resulted in an automatic actuation of an engineered safety feature, including the reactor protection system.

This event posed no significant safety implications because all safety systems responded as designed. Therefore, the health and safety of the public were not affected at any time during this event.

END OF ABSTRACT

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1.0 Description of the Event

At 0220 hours on November 11, 1995, the Unit 2 "MG Set Trouble" for Motor Generator (MG) set "A" alarm annunciated. It was determined that the output breaker of the Unit 2 "A" MG set had tripped open on a directional overcurrent. The "A" MG set was secured at 0354 hours by opening the supply breaker and removed from service to support troubleshooting activities.

On November 11, 1995, at 1215 hours with Unit 2 at 100 percent power, an automatic reactor trip occurred. The reactor trip initiating signal was "Hi Flux Rate - Reactor Trip." This signal was initiated when the output breaker of the Control Rod Drive System "B" MG set (EHS System AA, Component MG) tripped open coincident with the "A" MG set out of service causing the control rods to drop into the core.

Investigations identified that a loose fuse (Component FU) in the control power to the "A" MG set voltage regulator was the cause of the output breaker trip. When a fuse on the remaining MG set voltage regulator failed, power was lost to the control rods. The reactor trip signal was generated due to the effect of the control rods dropping into the core.

Emergency procedure 2-E-0, "Reactor Trip or Safety Injection", was entered. Initially, Reactor Coolant System (RCS) pressure decreased to approximately 1950 psig and RCS temperature decreased to approximately 543 degrees F. Pressurizer pressure, level, and RCS temperature subsequently returned to their normal programmed values. All ESF equipment responded as designed. Control Room personnel also entered AP-5 to address a momentary hi radiation alarm on the condenser air ejector radiation monitor. Subsequent samples were taken and normal levels were present at the air ejector discharge.

The fuse holders (Component FUB) for the fuses in the MG sets were tightened and the "A" MG set was returned to service at 1038 hours and the "B" MG set returned to service at 1055 hours on November 12, 1995.

The "A" and "B" MG sets were successfully started and returned to service.

2.0 Significant Safety Consequences and Implications

This event posed no significant safety implications because all safety systems responded as designed. Transient response of the unit was compared to previous reactor trips and determined to be typical for this type of event. The plant responded correctly to the reactor trip. Therefore, the health and safety of the public were not affected at any time during this event.

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2.0 Significant Safety Consequences and Implications - Continued

A four (4) hour report was made to the NRC Operations Center at 1445 hours on November 11, 1995 in accordance with 10 CFR 50.72 (b)(2)(ii). This event is reportable pursuant to 10 CFR 50.73 (a)(2)(iv) for a condition that resulted in an automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS).

3.0 Cause of the Event

The reactor trip was due to the loss of the "B" MG set while the "A" MG set was tagged out for troubleshooting. The loss of the "B" MG set caused the control rods to drop into the core which initiated the reactor trip signal. Loose fuses in the control power to the voltage regulators of each of the MG sets were determined to be the cause for the loss of the MG sets.

4.0 Immediate Corrective Actions

Emergency procedure E-0, "Reactor Trip and Safety Injection", was entered. Initially, Reactor Coolant System (RCS) pressure decreased to approximately 1950 psig and RCS temperature decreased to approximately 543 degrees F. Pressurizer pressure, level, and RCS temperature subsequently returned to their normal programmed values. Control Room personnel also entered AP-5 to address a momentary hi radiation alarm on the air ejector radiation monitor. Subsequent samples were taken and normal radiation levels were present at the air ejector discharge. All ESF equipment responded as designed.

The fuse holders for the fuses in 2-ED-MG-1A and 2-ED-MG-1B were tightened. The "A" and "B" MG sets were then successfully returned to service.

5.0 Additional Corrective Actions

Upon determining the cause of the reactor trip and the completion of the necessary repairs, Unit 2 was returned to power operation on November 12, 1995.

6.0 Actions to Prevent Recurrence

A Category 1 Root Cause Evaluation has been initiated to investigate the event. Upon completion of the evaluation, corrective actions will be implemented as necessary.

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6.0 Actions to Prevent Recurrence - Continued

Electrical Maintenance procedures for the MG sets will be revised to incorporate work practices to inspect fuse blocks, cartridges, and blades for proper tightness and alignment when new fuses are installed.

7.0 Similar Events

No similar events resulting in a reactor trip have occurred.

8.0 Additional Information

Westinghouse Electric Corporation Specification G676303 Revision 2 provides the requirements on the Motor Generator sets and the controls for the rod drive power supply system. The "Electrical Equipment of the AC Power Supply System for Nuclear Reactor Rod Controller" was installed by Westinghouse general orders RM-23037 and RM-24032, and equipment shop orders 80-S-220 and 80-S-219.

During this period, Unit 1 was operating at 100% power and was not affected by this event.

ATTACHMENT TO 9512070135 PAGE 1 OF 1

10 CFR 50.73

Virginia Electric and Power Company
North Anna Power Station
P. O. Box 402
Mineral, Virginia 23117

December 4, 1995

U. S. Nuclear Regulatory Commission NAPS: GSS
Document Control Desk Docket No. 50-339
Washington, D.C. 20555 License No. NPF-7

Dear Sirs:

Pursuant to North Anna Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Unit 2.

Report No. 50-339/95-004-00

This Report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to the Management Safety Review Committee for its review.

Very truly yours,

J. A. Stall
Station Manager

Enclosure:

cc: U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

R. D. McWhorter
NRC Senior Resident Inspector
North Anna Power Station

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